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Pricing Feeder Cattle

Using Breakeven Analysis to Establish a Purchase Price

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Know how much you can afford to spend before you purchase feeder cattle. Expected selling price at some future date and cost of gain are two factors that are critical in determining the price to pay for feeder cattle.

Use as many sources of information as possible to estimate future price. Many factors determine future price, making this the most difficult part of breakeven analysis. Cost of gain also is difficult to predict. However, feedlot records concerning past years' input costs and cattle performance can improve the accuracy of this prediction. It generally is better to be conservative and use an expected market price that may seem low and a cost of gain estimate that may seem high rather than be too optimistic.

Estimating Cost of Gain

Cost of gain generally is expressed on a dollars per hundred weight ($/cwt) basis and is the sum of all fixed, operating, feed, veterinary, marketing, and interest costs, as well as death losses, divided by total weight gain of the cattle.

Fixed costs are incurred each year whether there are cattle in the lot or not. Fixed costs include depreciation on facilities and equipment, interest on investment, insurance, and taxes.

Operating costs are incurred through operating the feedlot. They include fuel, lubrication, and utilities to run the silo unloader, tractor, loader, mixer wagon, lights, and electric waterers. Repairs to the feedlot and all equipment must also be included as well as a reasonable rate of return to labor and management and interest on operating capital.

Feed costs generally are the largest expense, excluding feeder cattle purchase, and include the cost of all home-grown and purchased grains, roughages, and supplements. Calculating feed costs for purchased feeds is relatively simple. Know how much and for what price you obtained each commodity. Calculating the cost of home-grown feeds often is more difficult. You need to know how much of each home-grown feed was fed to the cattle. Also, be sure to account for storage losses in the form of spoilage and shrink. The price assigned to home-grown commodities may either reflect current market value or production costs. You also must account for the costs of processing, storing, and delivering feed to the bunk.

Veterinary costs usually include expenditures for medication, veterinary calls, ear tags, and implants. These are easy to track if all receipts are kept.

Marketing costs include commissions, brokerage charges, check-off fees, and trucking costs.

Interest costs on purchased cattle may at times be the second largest expenditure.

Death losses often are erratic and difficult to predict. They include the purchase price of the calf plus all costs that have gone into that calf up until it dies including feed, veterinary, and trucking costs.

Table 1 may help you estimate fixed and operating costs of your feedlot. The figures listed in the table are intended to serve as examples only and apply to 200 head of cattle on feed for 210 days. Actual figures for individual operations are likely different. Feed costs may be estimated using Table 2. Table 3 may help you estimate cost of gain. To calculate interest on the cattle, assume that the approximate calf cost will be $90/cwt and that you have to borrow all but $100 on each calf purchased. To estimate death loss costs, assume that the purchase price of the calf will be approximately $90/cwt and multiply total costs plus total calf value by your estimate of the percentage death loss. Cost of gain equals total cost divided by total gain, all multiplied by 100.

Table 1. Cost of feeding cattle exclusive of feed, death loss, marketing, interest on cattle, and veterinary costs

	Example[a]	Your estimate
	($ per head)	
Operating costs		
Fuel, lubrication and utilities	1.50	_____
Repairs	3.00	_____
Labor and management	5.00	_____
Overhead (5% of operating cost)	.50	_____
Interest on operating capital (11% annual rate for 7 months)	.63	_____
Total operating costs	10.63	_____
Fixed Costs		
Depreciation	17.15	_____
Interest on investment	15.10	_____
Insurance and taxes	3.15	_____
Total fixed costs	35.40	_____
Total cost for 210 days	46.03	_____
Cost per head per day (yardage)	.22	_____

[a] South Dakota Fact Sheet 694, Custom Beef Feeding Costs for Small Lots.

Table 2. Feed costs[a]

Example		Your figures	
Grain	18 lb X $ .0446[b]/lb = $ .8036	Grain	_____ lb X $ _____/lb = $ _____
Silage	7 lb X $ .0110[c]/lb = $ .0770	Silage	_____ lb X $ _____/lb = $ _____
Hay	4 lb X $ .0350[d]/lb = $ .1400	Hay	_____ lb X $ _____/lb = $ _____
Supplement	1 lb X $ .1250[e]/lb = $ .1250	Supplement	_____ lb X $ _____/lb = $ _____
Total	$ 1.1456		$ _____

[a] Per head per day. Price for each commodity adjusted for shrinkage.
[b] Dry corn at $2.50/bushel.
[c] Corn silage at $22/ton.
[d] Hay at $70/ton.
[e] Supplement at $250/ton.

Table 3. Cost of gain analysis

	Example[a]	Your estimate
Operating costs (table 1)	10.63	_____
Fixed costs (table 1)	35.40	_____
Veterinary costs	8.00	_____
Marketing costs	10.00	_____
Interest on cattle[a]	22.15	_____
Feed costs (table 2)		
Example $1.1456/hd/d X 210 days =	240.58	
Your figure $_____/hd/d X ___ days =		_____
Subtotal	326.76	_____
Death loss — Example — your figure		
Subtotal = 326.76		_____
.90 X 500 lb = 450.00		_____
Total 776.76 X 1%	_____ X _____ 7.77	_____
Total (subtotal + death loss)	334.53	_____
Cost of gain, per cwt[b]	55.76	_____

[a] [(500 lb X .90 /lb) - $100 equity] X .11 /365 X 210
[(___ lb X ___ /lb) - $___ equity] X ___ /365 X ___

[b] (334.53 /hd)/(600 lb total gain) X 100.
($___ /hd)/(__ lb total gain) X 100.

Breakeven Analysis

Use breakeven analysis to determine purchase price. This requires use of the following formula:

Purchase value = Sale value - Feeding costs

Where sale value = sale weight x price, feeding costs = cost of gain x total gain (pay weight to pay weight) and purchase value = purchase weight x price. The formula may be rearranged to:

Breakeven purchase price =

$$\frac{\text{(sale weight x price) - (cost of gain x total gain)}}{\text{purchase weight}}$$

Using the cost of gain figures from the above examples and a projected selling price of $75/cwt, the breakeven purchase price would be:

$$.9809 = \frac{(1100 \times .7500) - (600 \times .5576)}{500}$$

Use Table 4 to estimate the breakeven purchase price of 500-lb calves fed to 1100 lb pay weight using various costs of gain and expected market prices.

Suppose you expect finished cattle to be worth $70/cwt at some point in the future and your estimated cost of gain was $50/cwt. The breakeven purchase price for a 500-lb calf is $94/cwt. If the market fell and fed cattle were worth only $65/cwt, the breakeven purchase price would have been $83/cwt and the cattle would have lost $55/head [(94-83) x 5].

Likewise, if feeding conditions were worse than expected and cost of gain was $55/cwt rather than $50/cwt, the breakeven purchase price would have been $88/cwt and the feeder would have lost $30/head [(94-88) x 5]. If the market fell and feeding conditions were poor, the feeder would have lost $85/head if he paid $94/cwt for the calf.

Clearly, the accuracy of the price and cost of gain projections are tremendously important in order to estimate breakeven purchase price.

Table 4. Breakeven purchase price for feeding calves to slaughter (500-1100 lb)

Expected market price,	Cost of gain ($/cwt)		
$/cwt	50.00	55.00	60.00
65.00	83.00	77.00	71.00
70.00	94.00	88.00	82.00
75.00	105.00	99.00	93.00
80.00	116.00	110.00	104.00

Table 5. Breakeven purchase price for backgrounding (500-750 lb)

Expected market price,	Cost of gain, $/cwt		
$/cwt	45.00	50.00	55.00
70.00	82.50	80.00	77.50
75.00	90.00	87.50	85.00
80.00	97.50	95.00	92.50
85.00	105.00	102.50	100.00

Tables 5 and 6 examine breakeven purchase prices for backgrounding 500-lb calves to 750 lb and feeding 750-lb yearlings to an 1150-lb slaughter weight, respectively.

Tables 4, 5, and 6 were generated using the above breakeven formula and apply only to the specific feeding plans listed (500-750 lb, 750-1150 lb or 500-1100 lb). Similar tables representing other potential starting and ending weights may be generated using the formulas.

Table 6. Breakeven purchase price for finishing yearlings (750-1150 lb)

Expected market price,	Cost of gain, $/cwt		
$/cwt	50.00	55.00	60.00
65.00	73.00	70.33	67.67
70.00	80.67	78.00	75.33
75.00	88.33	85.67	83.00
80.00	96.00	93.33	90.67

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